ADMINISTRATIVE NOTE:
NEW REQUIREMENTS/PROCEDURES

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BAA 03-34 PROPOSER INFORMATION PAMPHLET

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The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will be posted directly to FedBizOpps.gov, the single government point-of-entry (GPE) for Federal government procurement opportunities over $25,000. The following information is for those wishing to respond to this Broad Agency Announcement.

REAL-WORLD REASONING (REAL), SOL BAA 03-34, DUE: Initial Closing: September 4, 2003, Final Closing: July 6, 2004; POC: Dr. Sri Kumar, DARPA/IPTO; FAX: (703) 741-7804

The DARPA Information Processing Technology Office (IPTO) solicits innovative proposals for a new program on Real-World Reasoning. A principal mission of IPTO, launched at DARPA in 2002, is to create the technologies critical to building practical cognitive information processing systems. Developing innovative machine reasoning technology that can effectively deal with the real world is central to this mission.

The objective of the REAL-WORLD REASONING (REAL) program is to explore and develop foundations, technology, and tools to enable effective, practical automated reasoning of the scale and complexity required for computers to perform complex tasks in the real world requiring intelligence. Effective, “real-world” machine reasoning requires inference in environments that are far more complex in scale and scope than those tackled by current machine reasoning methods. Enduring real-world systems need to deal with vast amounts of knowledge and information, often concerning dynamic and intentional phenomena. In addition, beliefs about the environment are often uncertain and involve plausible but not provable assumptions. The REAL program solicits innovative research efforts that can make fundamental and breakthrough advances in real-world reasoning to deal with these and related problems. Research efforts must implement the algorithms and technology in specific testbeds, and demonstrate novel capabilities for real-world reasoning.

Specifically, the program intends to

1. Develop and demonstrate innovative techniques that push the envelope of performance of reasoning engines, in terms of the scale of the problems that can be dealt with, and the speed and correctness of reasoning.

2. Explore, develop, and demonstrate novel methods that extend the breadth of reasoning to deal with
    a. Uncertain and dynamic environments where the knowledge base is characterized by uncertain and temporally changing information; and,

b. Strategic environments characterized by goals and intentions of many interacting agents and actors, in both cooperative and non-cooperative contexts.

3. Build and demonstrate embedded reasoners for active knowledge bases that recognize the commonalities and similarities among multiple ontologies, and combine and merge them, so as to enable well-informed reasoning through the exploitation of all information in the knowledge base.

The program duration is anticipated to be five years. The research plan for this BAA is structured in three phases. The Phase I effort is planned for an 18-month period; Phase II, for 18 months thereafter; and Phase III, for the final 24 months of the program. For each phase, proposals should clearly identify and describe the project's goals, approaches, milestones, testbeds, demonstrations, and cost. Proposers must structure their proposals to fit into one, two, or all of the three phases.

Research is sought in the following three topics:

Topic 1: High-performance reasoning techniques
Topic 2: Expanding the breadth of reasoning and hybrid methods
Topic 3: Embedded reasoners for active knowledge bases

Proposals may address one or more of the above topics, but must clearly identify the topics addressed and describe the proposed research for each separately. In the following, the topics are described in detail.

Topic 1: High-performance reasoning techniques

We seek innovative research efforts that explore and develop methods that push the envelope of performance of reasoning engines. Metrics to measure performance should be clearly specified in the proposal, including the scale of the underlying knowledge bases for the reasoning environment (such as number of entities, variables, rules, etc.), the speed of answering queries (for example, query response time using a 1-GHz processor), and the correctness in answering queries (such as fraction of queries answered correctly in a specified time interval).

It is desired that the Phase I research emphasize new high-performance inference methods for propositional knowledge bases. It is suggested that later phases build on the successes of core research in Phase I, and this includes extending the research to further performance improvements in propositional knowledge bases, as well as to high-performance reasoning in other systems such as first-order and higher-order logic, or fragments of such systems.

Proposals should clearly specify the performance targets, outline the technical approaches, and clearly present arguments and evidence to establish how the proposed approaches have the potential of reaching the specified target performance.

Methods for high performance may be based on any technical approach, but generic applicability to any knowledge base is important, and in particular for any propositional system in Phase I. Of particular interest are approaches based on models of computational complexity that characterize the computational hardness profile, or regimes of different complexities, of a given reasoning situation. Such an approach may exploit the hardness profile of a problem, and the knowledge base structure, to design new reasoning architectures and computationally tractable inference methods to deal with intrinsically high-complexity regimes, via systematic and well-characterized approximations or modifications of the reasoning environment, while minimally compromising other desirable dimensions of performance. Generic learning methods that enable scaling and speed-up of inference in any context are also of interest, as are methods that exploit combinations and interactions of different knowledge representations, and parallel reasoning, to obtain performance gains.

Proposals should quantify the performance targets for reasoning methods, in each phase. For example, a target for Phase I may be the ability to perform reasoning in propositional knowledge bases in excess of 10K variables and 40K rules, with 85 percent or higher rate of questions answered correctly, and a query response time of seconds on a 2.5-GHz processor. In Phases II and III, proposals may address methods for further performance scaling of propositional reasoning (for example, Phase II might address methods for improving query response time in a knowledge base ten times the size of knowledge bases considered in Phase I, with a Phase III scaling target of an additional ten times or more), and improved rate of correct answers (for example, in excess of 90%). Extensions to other knowledge bases such as first-order logic and fragments of such systems are also of interest in later phases. While this example is suggestive of the specification of performance targets, bidders are encouraged to propose all key relevant performance targets and methods that push the performance envelope maximally.

Proposed new reasoning methods should be demonstrated in a testbed. While performers may adopt their own testbed for developing their ideas for generic high-performance reasoning (which should be described in the proposal), DARPA is interested in testing and evaluating the reasoning methods to be developed in each phase of this topic in a common testbed. Performers will be required to demonstrate their new methods in such a common testbed, which will be made available to the performers. Such a common testbed may be drawn, for example, from the domain of chess, where the reasoning challenge problems may involve answering queries such as whether or not there exists a checkmate in a specified number of moves, starting from a mid-game position with a specified number and types of pieces for each player, within a specified response time window (for example, five seconds on a 2.5-GHz processor), and with associated explanations. Proposers are strongly encouraged to translate their proposed milestones to specific capabilities to be accomplished in the above mid-game chess problem (for example, a Phase I target may translate as follows: finding the existence of a checkmate in ten moves with five pieces for each player placed in arbitrary positions on the board). While this common testbed may be drawn from the domain of chess, it should be noted that the program emphasizes generic reasoning methods and not techniques specific to the testbed domain.

Topic 2: Expanding the breadth of reasoning and hybrid methods.

The goal of research in this topic is to develop foundations and methods that significantly expand the breadth of reasoning critical to practical cognitive information processing systems. This includes developing efficient techniques for reasoning in uncertain, dynamic, and intentional environments, as well as hybrid reasoning methods. Strategic reasoning methods and tools that support reasoning in multi-player contexts are also of interest.

This topic comprises three sub-topics:

Reasoning in uncertain and dynamic environments: Research is sought in the development of efficient and scalable methods for temporal reasoning under uncertainty for large knowledge bases. Of interest are methods for effectively representing uncertain information and relations among temporally evolving entities, as well as algorithms that support rich query-processing and predictive reasoning. Methods for assessing the states of unobserved entities in partially observed systems are of interest. Fast inference methods that can scale to large knowledge bases are important. Proposals should specify the target knowledge base size, and target query response time (say, on a 1-GHz processor). Approaches may include dynamic Bayesian networks that exploit the inference problem structure, and the use of systematic approximations. Non-monotonic reasoning methods that can effectively deal with dynamic changes to identities of items in the knowledge base, and deontic reasoning to deal with changes to the rules are also of interest. Proposals should clearly identify the metrics and milestones, and describe the testbed and demonstrations for program phases, and how the proposed approaches can potentially meet the milestones. For example, a Phase I target may be to develop and demonstrate the foundations and methods for temporal reasoning under uncertainty in a knowledge base of a certain size (e.g., 10K state variables), target response time on a specified processor (e.g., order of seconds on a 1-GHz processor), and error in state estimation (e.g., less than 10 per cent). Further scaling (e.g., 10X, 100X knowledge base size) and improvements in metrics may be addressed in additional phases. Proposals that address non-monotonic and deontic reasoning should specify the metrics and milestones, capturing the underlying implementation tradeoffs.

Hybrid reasoning: The goal in this topic is to develop innovative methods for hybrid reasoning that effectively combine multiple methods of reasoning to exploit advantages provided by different approaches. Example approaches include deductive inference, probabilistic reasoning, temporal reasoning, reasoning by analogy, etc. Methods that combine mental models with logic reasoners to exploit potential advantages of human-like reasoning, as well as methods for combining multiple theories, are also of interest. Hybrid reasoners that act on different partitions of the knowledge base (for example, partitioning by domain, time, and space), and methods for efficient dynamic composition of reasoners, are also solicited. Also of interest are hybrid methods that combine probabilistic and relational reasoning. Proposals must clearly identify approaches to addressing the technical challenges, and describe the metrics, milestones, and testbed for demonstrations, in each phase. An example milestone may be to develop and demonstrate, in Phase I, a hybrid reasoning system with specified types of interacting reasoners in a knowledge base of certain size (e.g., 100K variables), with order of seconds query response time on a 1-GHz processor, and demonstrate

performance benefits and new functionality not possible otherwise. It is suggested that research in Phases II and III address combining methods that are successfully developed in Phase I.

Strategic Reasoning: The goal of this topic is to develop methods for reasoning in strategic multi-player or multi-agent contexts where agents may be cooperative or non-cooperative. This includes tools for strategic reasoning that a) enhance reasoning ability to support intelligent individual decision-making in multi-player contexts, and b) that support composition of multi-player games to enable simulation-based analysis and reasoning. Interdisciplinary research that exploits and extends game theory for reasoning in dynamic strategic interactions involving many players in a hierarchy is of interest. Interactions may range from coalition-formation to bargaining to bidding and auction games. Strategic reasoning methods, applicable to a broad spectrum of strategic contexts, must address techniques to represent game models compactly, to ascertain best responses, and to predict game outcomes and dynamics. Developing tools for composing dynamic hierarchical games, including the development of a language for the specification and composition of games, is of interest. Proposals must be structured to address novel basic and core research in Phase I, with substantial extensions undertaken in later phases. Proposals should clearly specify the metrics and milestones for each phase. It is desired that in Phase I, proposals emphasize development of methods for compact representation of games, efficient algorithms for computing stable and predictable outcomes in games with large state spaces (target processing time and state space should be specified), and a framework and testbed for composing games for simulation and analysis. The emphases in Phases II and III will be on scaling strategic reasoning tools to game contexts of several hundred agents; incorporating probabilistic, temporal, and hybrid reasoners into individual or agent decision processes; developing rapid game composition capability and distributed play; and demonstrating the value of strategic reasoning in DOD contexts such as logistics and war-gaming.

Topic 3: Embedded reasoners for active knowledge bases

Research is sought in innovative methods for reasoners that can be embedded in knowledge bases with multiple ontologies to support efficient and well-informed reasoning. Functionally, embedded reasoners should enable the maximal exploitation of information present in the knowledge base for efficient query response. Of interest are methods that reason across multiple large ontologies, and dynamically recognize similarities, overlap, and divergence in the relations and structure of the different ontologies. Methods that rapidly and effectively join, combine, and merge large ontologies are of interest. The technical approaches to developing embedded reasoners should be clearly explained, and these may include, but are not limited to, graph matching and isomorphism algorithms. Proposals should clearly specify the metrics and milestones, and testbed and demonstration plans, for each phase, capturing key dimensions of performance such as time to combine and merge ontologies of given sizes at a given processing speed. For example, a Phase I milestone may be to combine and merge two arbitrary ontologies, each having tens of thousands of entries, within seconds on a 1-GHz processor; and Phases II and III may focus on further scaling, as well combining ontologies with temporal, probabilistic, and other types of information.

PROGRAM SCOPE

Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific strategies listed above, and alternative visions will be considered. However, proposals should be for research that substantially contributes towards the goals stated. Research should result in prototype software and/or hardware demonstrating integrated concepts and approaches. In Phase II, DARPA may specify one or more common testbeds for the whole program, and performers are required to integrate and demonstrate their technology in such testbeds. Specifically excluded is research that primarily results in minor evolutionary improvement to the existing state of practice or focuses on special-purpose systems or narrow applications. Integrated solution sets embodying significant technological advances are strongly encouraged over narrowly defined research endeavors. Proposals may involve multiple research groups or industrial cooperation and cost sharing.

SUBMISSION PROCESS

The Defense Advanced Research Projects Agency/Information Processing Technology Office (DARPA/IPTO) requires completion of a **Broad Agency Announcement (BAA) Cover Sheet Submission** for each Proposal, by accessing the IPTO BAA Submission URL below:

http://www.dyncorp-is.com/BAA/index.asp?BAAid=03-34

After finalizing the **BAA Cover Sheet Submission**, the proposer must submit, in hardcopy form, the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and submitting it attached to the Proposal, the "original" and each designated number of copies. The Confirmation Sheet should be the first page of your Proposal. Failure to comply with these submission procedures may result in the submission not being evaluated.

Proposers must submit an original and **2** paper copies of the full proposal, and **6** electronic copies in Microsoft Word '97 for IBM-compatible or PDF format. Each electronic copy must be on a separate disk or CD. Each disk must be clearly labeled with BAA 03-34, proposer organization, proposal title (short title recommended) and "Copy ___ of 6." The full proposal (original and designated number of hard and electronic copies) must be submitted in time to reach DARPA by the **initial closing deadline** of 12:00 NOON (ET) **September 4, 2003,** to be considered for the initial evaluation phase. However, BAA 03-34, **REAL**, will remain open until 12:00 NOON (ET) **July 6, 2004**. While the proposals submitted after **September 4, 2003** deadline will be evaluated by the Government, proposers should keep in mind that the likelihood of funding such proposals is less than for those submitted by the initial closing date.

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The typical proposal should express a consolidated effort in support of one or more technical topic areas. Disjointed efforts should not be included in a single proposal.

Restrictive notices notwithstanding: Proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate non-disclosure requirements.

EVALUATION AND FUNDING PROCESSES

Proposals will not be evaluated against each other, since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in PROPOSAL FORMAT Section I and Section II (see below). Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Evaluation of proposals will be accomplished through a scientific review of each proposal using the following criteria, which are listed in descending order of relative importance:

(1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable and compelling. The technical concept should be clearly defined, and the technical approach clearly developed and described. Emphasis should be placed on the technical excellence of the development and experimentation approach.

(2) Innovative Technical Solution to the Problem: Proposed efforts should apply new or existing technology in an innovative way that supports the objectives. The offeror should include a plan for getting developed technology artifacts and information to the user community. The offeror must specify quantitative evaluation or experimental methods and metrics by which the proposed technical effort’s progress shall be measured.

(3) Potential Contribution and Relevance to the DARPA Mission: The offeror must clearly address how the proposed effort will meet the goals of the undertaking, and must indicate his or her understanding of the operating environment of the capability to be developed.

(4) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.

(5) Plans and Capability to Accomplish Technology Transition: The offeror should provide a clear explanation of how the technologies to be developed will be transitioned to capabilities for military forces. Technology transition should be a major consideration in the design of experiments, particularly considering the potential for involving potential transition organizations in the experimentation process.

(6) Cost Realism: The overall estimated cost to accomplish the effort should be clearly shown as well as the substantiation of the costs for the technical complexity described. Evaluation will consider the value to Government of the research and the extent to which

the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

Proposals may be reviewed by non-government personnel; however, contractors will not be used to conduct evaluations or analyses of any aspect of a proposal submitted under this BAA, unless one of the three conditions identified in FAR 37.203(d) applies.

The Government reserves the right to select for award all, some, or none of the proposals received. Proposals identified for funding may result in a contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. If warranted, portions of resulting awards may be segregated into pre-priced options.

GENERAL INFORMATION

Proposals not meeting the format described below in this pamphlet may not be reviewed. Proposals **MUST NOT** be submitted by fax or e-mail; any so sent will be disregarded. This notice, in conjunction with the BAA 03-34 FBO Announcement and all references, constitutes the total BAA. At the DARPA Program Manager's discretion, a Frequently Asked Questions (FAQ) list will be provided. The URL for the FAQ will be specified on the DARPA/IPTO BAA Solicitation page. No additional information is available, nor will a formal Request for Proposal (RFP) or other solicitation regarding this announcement be issued. Requests for same will be disregarded. All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

NEW REPORTING REQUIREMENTS/PROCEDURES: The Award Document for each proposal selected and funded will contain a mandatory requirement for submission of DARPA/IPTO Quarterly Status Reports and an Annual Project Summary Report. These reports, described below, will be electronically submitted by each awardee under this BAA via the DARPA/IPTO Technical – Financial Information Management System (T-FIMS).

The T-FIMS URL will be furnished by the government upon award. Detailed data requirements can be found in the Data Item Description (DID) DI-MISC-81612 available on the Government's ASSIST database (http://assist.daps.dla.mil/quicksearch/) Sample instructions that specify how information in the DID may be collected (content and frequency requirements) can be found in Appendix A. An outline of T-FIMS report requirements is as follows:

(a) Status Report: Due at least three (3) times per year – Jan, Apr, & Oct
1) Technical Report

a) Project General Information
b) Technical Approach
- Accomplishments
- Goals
- Significant changes / improvements

c) Deliverables
d) Transition Plan
e) Publications
f) Meetings and Presentations
g) Project Plans
h) Near term Objectives

2) Financial Report
3) Project Status / Schedule

(b) Project Summary (PSum): Due once each fiscal year in July

1) All Sections of the Status Report
2) QUAD Chart
a) Visual Graphic
b) Impact
c) New Technical Ideas
d) Schedule

PROPOSAL FORMAT

Proposals shall include the following sections, each starting on a new page (where a "page" is 8-1/2 by 11 inches with type not smaller than 12 point) and with text on one side only. The submission of other supporting materials along with the proposal is strongly discouraged. Sections I and II (excluding part M) of the proposal shall not exceed 40 pages total. Maximum page lengths for each section are shown in braces {} below.

Section I. Administrative

The BAA Confirmation Sheet {1 page} described above under “Submission Process” will include the following:

A. BAA number;
B. Technical topic area;
C. Proposal title;
D. Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address;
E. Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address;
F. Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant;

G. Contractor's type of business, selected from among the following categories: "WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

Section II. Detailed Proposal Information

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

A. {1 Page} Innovative claims for the proposed research.
This page is the centerpiece of the proposal and should succinctly describe the unique proposed contribution.

B. {1 Page} Proposal Roadmap
The roadmap provides a top-level view of the content and structure of the proposal. It contains a synopsis (or "sound bite") for each of the nine areas defined below. It is important to make the synopses as explicit and informative as possible. The roadmap must also cross-reference the proposal page number(s) where each area is elaborated. The nine roadmap areas are:

1. Main goals of the proposed research (stated in terms of new, operational capabilities for assuring that critical information is available to key users).

2. Tangible benefits to end users (i.e., benefits of the capabilities afforded if the proposed technology is successful).

3. Critical technical barriers (i.e., technical limitations that have, in the past, prevented achieving the proposed results).

4. Main elements of the proposed approach.

5. Rationale that builds confidence that the proposed approach will overcome the technical barriers. ("We have a good team and good technology" is not a useful statement.)

6. Nature of expected results (unique/innovative/critical capabilities to result from this effort, and form in which they will be defined).

7. The risk if the work is not done.

8. Criteria for scientifically evaluating progress and capabilities on an annual basis.

9. Cost of the proposed effort for each performance year, and each Phase.

C. {2 Pages} Research Objectives:

1. Problem Description. Provide concise description of problem area addressed by this research project.

2. Research Goals. Identify specific research goals of this project. Identify and quantify expected performance improvements from this research. Identify new capabilities enabled by this research. Identify and discuss salient features and capabilities of developmental software and hardware prototypes.

3. Expected Impact. Describe expected impact of the research project, if successful, to problem area.

D. Technical Approach:

1. {15 Pages} Detailed Description of Technical Approach. Provide detailed description of technical approach that will be used in this project to achieve research goals. Specifically identify and discuss innovative and unique aspects of the technical approach. Identify how and why your approach is superior to potential alternatives.

2. {3 Pages} Comparison with Current Technology. Describe state-of-the-art approaches and the limitations within the context of the problem area addressed by this research.

E. {3 Pages} Statement of Work (SOW) written in plain English, outlining the scope of the effort and citing specific tasks to be performed and specific contractor requirements.

F. Schedule and Milestones:

1. {1 Page} Schedule Graphic. Provide a graphic representation of project schedule including detail down to the individual effort level. This should include but not be limited to, a multi-phase development plan, which demonstrates a clear understanding of the proposed research; and a plan for periodic and increasingly robust experiments over the project life that will show applicability to the overall program concept. Show all project milestones. Use absolute designations for all dates.

2. {3 Pages} Detailed Individual Effort Descriptions. Provide detailed task descriptions for each individual effort in schedule graphic.

G. {2 Pages} Deliverables Description. List and provide detailed description for each proposed deliverable. Include in this section all proprietary claims to results, prototypes, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. The offeror must

submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights (see DFARS 227.) Specify receiving organization and expected delivery date for each deliverable.

H. {2 Pages} Technology Transition and Technology Transfer Targets and Plans. Discuss plans for technology transition and transfer. Identify specific military and commercial organizations for technology transition or transfer. Specify anticipated dates for transition or transfer.

I. {2 Pages} Personnel and Qualifications. List of key personnel, concise summary of their qualifications, and discussion of proposer's previous accomplishments and work in this or closely related research areas. Indicate the level of effort to be expended by each person during each contract year and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity.

J. {1 Page} Facilities. Description of the facilities that would be used for the proposed effort. If any portion of the research is predicated upon the use of Government Owned Resources of any type, the offeror shall specifically identify the property or other resource required, the date the property or resource is required, the duration of the requirement, the source from which the resource is required, if known, and the impact on the research if the resource cannot be provided. If no Government Furnished Property is required for conduct of the proposed research, the proposal shall so state.

K. {1 Page} Experimentation and Integration Plans. Offerors shall describe how their results could be integrated with solutions that other contractors are currently developing or are likely to develop. In addition, offerors should identify experiments to test the hypotheses of their approaches and be willing to work with other contractors in order to develop joint experiments in a common testbed environment. Offerors should expect to participate in teams and workshops to provide specific technical background information to DARPA, attend semi-annual Principal Investigator (PI) meetings, and participate in numerous other coordination meetings via teleconference or Video Teleconference (VTC). Funding to support these various group experimentation efforts should be included in technology project bids.

L. {2 Pages} Cost by task, with breakdown into accounting categories and equipment for the entire contract and for each contract year, and each Phase. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as contract options with separate cost estimates for each.

MANDATORY!

M. Contractors requiring the purchase of information technology (IT) resources as Government Furnished Property (GFP) **MUST** attach to the submitted proposals the following information:

1. A letter on Corporate letterhead signed by a senior corporate official and addressed to **Dr. Sri Kumar,** DARPA/IPTO, stating that you either can not or will

not provide the information technology (IT) resources necessary to conduct the said research.

2. An explanation of the method of competitive acquisition or a sole source justification, as appropriate, for each IT resource item.

3. If the resource is leased, a lease purchase analysis clearly showing the reason for the lease decision.

4. The cost for each IT resource item.

IMPORTANT NOTE: IF THE OFFEROR DOES NOT COMPLY WITH THE ABOVE STATED REQUIREMENTS, THE PROPOSAL WILL BE REJECTED.

Awards made under this BAA may be subject to the provisions of the Federal Acquisition Regulation (FAR) Subpart 9.5, Organizational Conflict of Interest. All offerors and proposed subcontractors must affirmatively state whether they are supporting any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports, and identify the prime contract number. Affirmations should be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest, as that term is defined in FAR 9.501, must be disclosed in Section II, I. of the proposal, organized by task and year. This disclosure shall include a description of the action the Contractor has taken, or proposes to take, to avoid, neutralize, or mitigate such conflict.

Section III. Additional Information

A bibliography of relevant technical papers and research notes (published and unpublished) that document the technical ideas, upon which the proposal is based, may be included in the proposal submission. Provide one set for the original full proposal and one set for each of the full proposal hard and electronic copies. Please note: The materials provided in this section, and submitted with the proposal, will be considered for the reviewer's convenience only and not considered as part of the proposal for evaluation purposes.

The administrative addresses for this BAA are:

Fax: 703-741-7804 Addressed to: DARPA/IPTO, BAA 03-34
Electronic Mail: baa03-34@darpa.mil
Electronic File Retrieval: http://www.darpa.mil/ipto/Solicitations/index.html

Mail to: DARPA/IPTO
ATTN: BAA 03-34
3701 N. Fairfax Drive
Arlington, VA 22203-1714

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal to this BAA, must be received at one of the administrative addresses below by 12:00 NOON (ST) **June 29, 2004**; e-mail or fax is preferred. DARPA intends to use electronic mail and fax for some of the correspondence regarding BAA 03-34. Proposals **MUST NOT** be submitted by fax or e-mail; any so sent will be disregarded. All proposals, administrative correspondence, and questions submitted in response to this solicitation must be in the English language. Submissions received in other than English shall be rejected.

Appendix A - Sample Instructions for Application of DiD MI-DISC-81612 or Analog

REMARKS.

- REPORTING PERIOD TERMINOLOGY
  - QUARTERLY REPORTING PERIODS:
    - JUL-SEP: COVERS PERFORMANCE FROM 1 JULY - 30 SEPTEMBER
    - OCT-DEC: COVERS PERFORMANCE FROM 1 OCTOBER - 31 DECEMBER
    - JAN-MAR; COVERS PERFORMANCE FROM 1 JANUARY - 31 MARCH
    - APR-JUN: COVERS PERFORMANCE FROM 1 APRIL - 30 JUNE

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- ELECTRONIC SUBMISSION. THE CONTRACTOR SHALL ACCESS THE DARPA EXTRANET REPORTING PAGE TO BE FURNISHED AND ELECTRONICALLY SUBMIT ALL REQUIRED REPORTING INFORMATION ACCORDING TO ALL SPECIFICATIONS BELOW.

- POST-AWARD INITIAL SUBMISSION REQUIREMENT: SUBMIT WITHIN 30 CALENDAR DAYS OF AWARD ALL DATA ITEMS IN 1. PROJECT INFORMATION.

- MINIMAL INITIAL REPORT: IF AWARD OCCURS WITHIN 30 CALENDAR DAYS OF END OF QUARTERLY REPORTING PERIOD SUBMIT DATA ITEMS 2.10 ISSUES OR CONCERNS AND 3.2 PROJECT PLANS, ONLY, IN FIRST REPORT. DUE DATE FOR MINIMAL FIRST REPORT IS WITHIN 15 CALENDAR DAYS OF END OF QUARTERLY REPORTING PERIOD THAT INCLUDES AWARD DATE.

- GENERAL QUARTERLY SUBMISSION REQUIREMENTS
  - FREQUENCY: BLOCK 10. INPUT FOUR (4) TIMES YEARLY, ONCE FOR EACH OF THE QUARTERLY REPORTING PERIODS CITED ABOVE, FOR DURATION OF CONTRACT.
  - REPORTING PERIOD: BLOCK 11. REPORT ON PERFORMANCE DURING THE MOST RECENT QUARTERLY REPORTING PERIOD.
  - DUE DATE: BLOCK 12 AND BLOCK 13. SUBMIT WITHIN FIFTEEN (15) CALENDAR DAYS AFTER THE END OF MOST RECENT QUARTERLY REPORTING PERIOD, BEGINNING XXXXX, I.E.
    - FOR REPORTING PERIOD JUL-SEP, DUE DATE IS OCTOBER 15

- FOR REPORTING PERIOD OCT-DEC, DUE DATE IS JANUARY 15
- FOR REPORTING PERIOD JAN-MAR, DUE DATE IS APRIL 15
- FOR REPORTING PERIOD APR-JUN, DUE DATE IS JULY 15

- QUARTERLY CONTENT REQUIREMENTS
  - IF CURRENT SUBMISSION IS FINAL SUBMISSION FOR THIS CDRL ITEM INCLUDE ALL PARAGRAPHS OF REFERENCED DATA ITEM DESCRIPTION (DID), ELSE
    - FOR THE APR-JUN QUARTERLY REPORT, INCLUDE ALL PARAGRAPHS OF REFERENCED DID
      FOR 3.2.1. PLANNED ACTIVITIES, IN ADDITION TO REPORTING PLANNED ACTIVITIES FOR NEXT QUARTER, INCLUDE A TOP-LEVEL BULLET LIST OF PLANNED ACTIVITIES FOR TIME PERIOD BEGINNING 1 OCTOBER OF CURRENT YEAR AND ENDING 31 DECEMBER OF NEXT YEAR.
    - FOR ALL OTHER QUARTERLY REPORTS, INCLUDE ALL PARAGRAPHS OF THE REFERENCED DID EXCEPT FOR DID PARAGRAPH 1.2 PROJECT DESCRIPTION (AND ALL SUB-ELEMENTS OF 1.2)

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- GENERAL MONTHLY SUBMISSION REQUIREMENTS
  - FREQUENCY: BLOCK 10. INPUT TWELVE (12) TIMES YEARLY FOR DURATION OF CONTRACT.
  - REPORTING PERIOD: BLOCK 11. REPORT ON PERFORMANCE DURING PREVIOUS MONTH.
  - DUE DATE: BLOCK 12 AND BLOCK 13. SUBMIT WITHIN FIFTEEN (15) CALENDAR DAYS AFTER END OF PREVIOUS MONTH.

- MONTHLY CONTENT REQUIREMENTS
  - FOR DURATION OF CONTRACT, SUBMIT REFERENCED DID ITEMS 2.3 INCURRED EXPENSES THIS PERIOD AND 2.4 INCURRED EXPENSES TO DATE, AS LUMP SUM TOTAL ONLY.

- CONCURRENT SUBMISSION REQUIREMENTS
  - FOR DURATION OF CONTRACT SUBMIT 2.5 INVOICES THIS PERIOD AND 2.6 INVOICES TO DATE, AS INVOICES ARE SUBMITTED FOR PAYMENT. PERIOD IN 2.5 DENOTES TIME SINCE LAST SUBMISSION OF INVOICE(S).

- FORMAT
  - GENERAL FORMAT INSTRUCTIONS: COMPLY WITH ALL INSTRUCTIONS DELINEATED ON THE DARPA EXTRANET REPORTING PAGE.

- SPECIAL FORMAT INSTRUCTIONS: SUBMIT 3.1.7, PUBLICATIONS THIS PERIOD, IN ADOBE ACROBAT (PDF) FILE FORMAT. SUBMIT 1.2.3.1, SCHEDULE GRAPHIC IN EITHER POWERPOINT (PPT), JPG, TIFF, OR PDF FILE FORMAT. SUBMIT 1.2.6, QUAD-CHART, IN MICROSOFT POWERPOINT (PPT) FILE FORMAT.

- INPUT OF PROPRIETARY INFORMATION:
  - PROPRIETARY INFORMATION MAY BE ENTERED ONLY FOR THE FOLLOWING ITEMS AND ONLY IN THOSE AREAS DESIGNATED FOR SUCH INPUT ON THE DARPA EXTRANET REPORTING PAGE
    - 1.2.2.1 DETAILED DESCRIPTION OF TECHNICAL APPROACH
    - 1.2.2.2 COMPARISON WITH CURRENT TECHNOLOGY
    - 3.1.2 TECHNICAL ACCOMPLISHMENTS THIS PERIOD
    - 3.2.1 PLANNED ACTIVITIES

- CLASSIFICATION: THE ENTIRE REPORT SHALL BE UNCLASSIFIED.

- INCLUDE THIS R&D PROJECT SUMMARY ON THE FINAL DD FORM 250.